



the
SEED

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Volume 5

Number 1

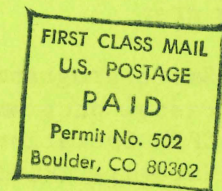
January 1983

Price \$1.50

MEMBERSHIP INFORMATION

\$10 APPLICATION FEE AND \$18 PER YEAR DUES

Seed Editors
3015A Bluff St.
Boulder, CO 80301



From our President

Welcome to 1983! I am looking forward to the new year and I hope you all are too. It's exciting to see how much attention the personal computer is now getting from every sector. By now most of us are aware that TIME magazine has named the computer the MACHINE OF THE YEAR instead of announcing their usual MAN OF THE YEAR. Nearly every local news station has carried a special on the impact of home computers and video games. It's anyone's guess just how far this all will go, but I feel that we are just beginning to see the start.

With regards to the requests of the last meeting I have tried to compile a partial list of things that could be done by members to help the club. There was a great response on the whole and I already have several volunteers for a couple of jobs mentioned last month.

The first thing that we could use is experts in the following fields. These people should be willing to have their names and phone numbers published in the Seed so that members with questions could contact them. These people are not to replace tutors and small groups, but should be willing to give assistance where a phone call is sufficient. The areas are:

- Basic programming
- Pascal programming
- CP/M Operation
- Hardware maintenance
- Assembly language programming
- Graphics systems

Obviously, if there is something else you want added just call.

Next, two of our never ending pleas. If you have a program that you have written for use on the Apple, no matter under which operating system, we would like to add it to the club library. Unless you are thinking of marketing the program we would like to see it no matter what field it is from. Also if you have tried any of the new software, have read a book on the Apple or have seen anything of interest

please write us a small article for the SEED.

Other areas where members can be involved will be posted in the SEED.

Steven Martin

January GENERAL MEETING

Our next regular meeting will be held at:

COLORADO SCHOOL OF MINES
GREEN CENTER
GOLDEN, COLORADO

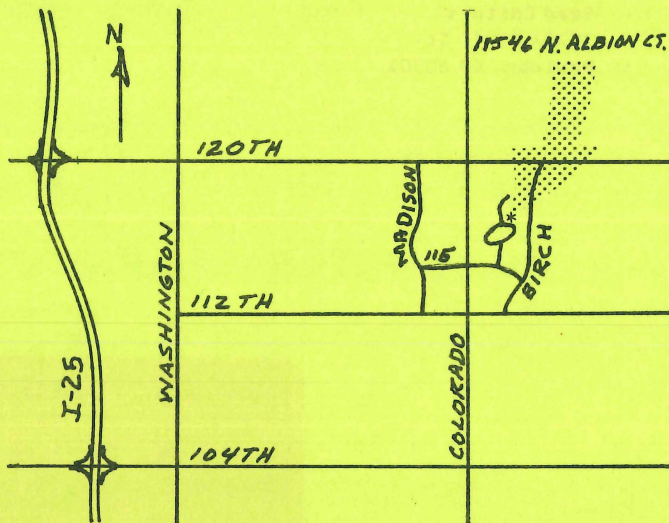
7 PM January 6, 1983

We hope to see you there!

Meetings are monthly scheduled for the first Thursday of each month.

JANUARY Swap Meet

Our January Swap Meet will be held on Sunday, January 9, 1983 at the home of Rich and Nancy Waite, 11546 N. Albion Ct. in Thornton, Colorado. As usual the hours will be from 10AM to 3PM. See the map for help in finding the location. If you get lost, call Rich at 451-9215 for further directions.



FEBRUARY Swap Meet

Our February Swap Meet is currently scheduled for Sunday, February 6. Dave and Trudy Nelson will be our hosts. They live at 2224 Balsam Street in Lakewood.

UPCOMING MEETING SCHEDULE

(subject to change)
by David Eisler, V.P.

JANUARY

Quantum Technology Inc. of Aurora will demonstrate their line of real world interfaces for the APPLE (motor control, temperature sensing, and other neat stuff).

Also an old friend, Mike Westerfield, will be in to demonstrate his new product- the ORCA macro assembler. He says he will be offering this Apple 6502 assembler at a substantial discount at the meeting.*

FEBRUARY

***** APPLE PI RAFFLE !!! *****

The drawing will be held and winners announced! A Z-80 CPM card will be given away along with the COMPLETE GRAPHICS SYSTEM by Penguin. Tickets are only \$1.00 and are available at the meetings & swap meets. Non-members are welcome. Please support your club by buying a couple tickets. The proceeds will go to paying for our meeting room!

Also in February, we are pleased to have a demonstration of the "TomorrowHouse" computerized home control system. The system combines home security, temperature control, appliance control, and more into one complete package. Compu-Home Systems Inc. of Denver puts out the package and the vice president, Russ Coffman, will demonstrate.*

MARCH

MYSTERY MEETING by Scott Knaster. Scott's not talking, but I'll bet he brings in an as yet unannounced computer with some fruit on the label!*

APRIL

Business Applications.*

MAY

Elections

* = revised since last month

TREASURER'S REPORT

Dec. Treasurer's Report

Nov. Ending Bal.	3,860.84
New Membership	364.00
Renewals	313.00
D.O.M. Sales	345.00
Club Library Copying	63.00
Advertising	.00
Sales of Supplies	2,558.00
Interest Received	14.68
Misc.	18.50

Supplies for:

President	<	.00>
Vise President	<	.00>
Secretary	<	.00>
Treasurer	<	.00>
Librarian	<	409.31>
Editor	<	759.96>
Officers at large	<	.00>
PURCHASE FOR RESALE	<	1,811.00>

Balance as of 12/15/82	4,556.75
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Respectfully submitted

Fred Yates -- Treasurer

December, 1982

Apple Pi Benefits

1. Program library
2. Club buying power on supplies
3. Publication library
4. Monthly meetings
5. Newsletter
6. Member Forum

FDR

APPLE CUTS PRICE

	NOW
Apple II plus	\$1330
Apple III (128K)	\$2995
Apple III (256K)	\$3495
Profile (5 MB)	\$2195

Franklin Ace 1000	\$1330
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DE

FR

APPLE PI USERS GROUP
December 2, 1982

The Apple Pi Users Group was called to order by President Steve Martin in the Green Center at the Colorado School of Mines, Golden, Colorado.

REPORTS FROM BOARD MEMBERS

PRESIDENT: Many door prizes will be given away tonight. The highlight of tonight's program will be a demonstration by Joseph Clarke who is a representative from a company called Savvy.

TREASURER: Fred Yates gave a brief summary of how the monies are being spent. A more detailed report is available in The Seed. Door prizes tonight were obtained from various sources. Some were purchased by the Treasurer; others were donated by a local computer store and there is even a door prize from the Apple Computer Company through the generosity of Scott Knaster. During intermission the Club will have their usual discount products available to those individuals who are members; plus this is the time when guest can join the Club or past members can renew their membership. A new product that will be available tonight is the "Verbatim Christmas Pak" which contains 10 diskettes and has a disk head cleaning kit. Couldn't get hardpaks tonight. We also have CDC diskettes for those people who wish to purchase less than 10 diskettes at one time.

VICE PRESIDENT: Dave Eisler made an announcement concerning the raffle tickets and the door prizes that are being offered. For those who are unaware of the raffle tickets - in February we will have to start paying for the room where we have our monthly Apple Pi meetings - the raffle is our way of raising funds for the use of the meeting room. A Z-80 CPM card and Complete Graphics System will be the two door prizes that can be won. Some of the upcoming future programs we are thinking of having are different word processing and Visicalc programs.

LIBRARIAN: Bob Gaiser brought several door prizes from the Computer Source. In January the library will have available diskettes in both the PASCAL and CPM languages.

OFFICERS-AT-LARGE: December's Swap Meet will be at Wayne Harrison's clubhouse, 1155 S. Bellaire (Bellaire & Louisiana).

DISCUSSION: MORE PARTICIPATION FROM CLUB MEMBERS. Every little bit helps. It was suggested that we might possibly have an active and non-active membership list. The President is working on the newsletter exchange documentation that has been ongoing since the Club began. He would like to update it and would appreciate a volunteer to help him go through the library. Here's that golden opportunity to see many different newsletters from all over the United States.

DEMO (1): Bob Gaiser demonstrated several programs from this month's Disk of the Month. Remember we do have previous DOMs and they can be bought from Bill Gunderson. Also, if you go to one of the six stores that sponsor Apple Pi, and you are a member of Apple Pi, you may ask for the free Christmas programs that have been given to the sponsoring computer stores.

DOOR PRIZES: Rob Lubeck, Trudie Nelson, Jose Steran, Gary Harth, Tony Jeffries, John Wells, Phil Russell.

DEMO (2): Joseph Clark from Savvy was the guest speaker tonight. What is Savvy? It is a new personal language system that uses a Z-80 co-processor board. The uniqueness of Savvy is its ability to recognize conversational words. Thank you Mr. Clarke for an interesting evening.

MAV

Apple Pi Benefits

1. Program library
2. Club buying power on supplies
3. Publication library (newsletters)
4. Monthly meetings
5. Newsletter
6. Member forum

APPLESEEDS OF WISDOM

by Jack D. Quinn

From the number of questions that I have been asked in recent days, there seems to be some confusion about the difference between an Apple II and an Apple II Plus. The only difference is what kind of ROMs are on the main mother board; it will be an Apple II if it has Integer Basic in the ROMs located at E0, E8, and F0; otherwise it will be an Apple II Plus if it has Applesoft ROMs in locations D0, D8, E0, E8, and F0. I will list the part numbers for the ROMs so you can figure out just what your Apple has or you can figure out what those old ROMs you have in your junk box are. (You don't have a junk box?)

For those of you that don't know, the ROMs are the memory circuits that are located in row F of your Apple. These are the circuits that allow you to come up in Basic when you turn on your Apple without having to load in any program from disk or tape as in many other computers. There are six sockets in row F for these chips and only certain circuits can be plugged into these sockets. Each ROM as used in the Apple holds about 2K of information so that makes Integer Basic about 6K long and Applesoft about 10K long. Each chip is about 3/4 inch wide and about 1 1/2 inch long and has 24 pins coming out of it. There is usually a part number from Apple printed on it in white ink so you can identify what each chip is (most of the time).

Lets start with an Apple II first which has Integer Basic. In the socket that has the label ROM-F8, you should find an Old Monitor rom with the part number 341-0004; you could also have an Auto-Start Rom with the number of 341-0020 in this location. In socket E0, you should have a chip with the number 341-0001, socket ROM-E8, 341-0002, and socket ROM-F0, 341-0003. Socket ROM-D8 is usually empty and if you are very lucky, you may have the Programmers Aid #1 ROM part number 341-0016 in socket ROM-D0. An Apple II Plus will have all

six sockets in use with the following location and part number: Socket ROM-D0 341-0011 Applesoft, socket ROM-D8 341-0012, socket ROM-E0 341-0013, socket ROM-E8 341-0014, and socket ROM-F0 341-0015. These are the only chips that can be in these sockets!!! You should find an Auto-start ROM number 341-0020 in socket ROM-F8.

Up until the last year or so, if you wanted to have both Integer and Applesoft Basic in your computer, you went out and bought what was known as a ROM card from Apple with the appropriate form of Basic in ROM for your computer. This card always went into slot 0. The limiting factor of doing this was that you could only have 48K of memory. When Apple came out with Pascal, they needed more room in RAM so they came out with what is known as a Language card. This was nothing more than a card with 16K more memory on it and an Autostart ROM. You must remember at this time, almost all of the Apples in use were Integer Basic and almost no one had the Auto-Start ROM which cost an additional \$65.00. Now what do you do if your favorite program was in Integer Basic and you have an Apple II Plus with a RAM card? Apple came up with a neat idea in the Disk Operating System that looks at the computer to find out what Basic it has and then loads the opposite basic into the RAM card. Please note a difference between RAM and ROM--RAM you can change and ROM is fixed and you cannot change.

RAM cards were not used very much because the only way you could get one was to buy Pascal from Apple for \$495.00 plus tax. All of this has changed in the past year with RAM cards being made by many different companys and a wide range of prices. You will still see references to having a language card in your Apple when using many programs. Just remember that a language card is the same as a 16K or larger RAM card and can be used in the same way, the only difference being that the first Language card from Apple did have the Autostart ROM on the circuit board. This would be redundant now since most mother boards already have this ROM already installed. If you do not have a

RAM card and you are planning to buy one, remember that you do not get an additional 16K of memory when you install it. Most programs do not make use of this memory space. Some programs that do are the Visicalc type programs, the word processors, and big operating systems such as Logo, Pascal, and CP/M. The larger RAM space is a real help in these programs. I should point out that you too can be like your IBM PC friends and your Apple can have 256K of memory. You may not be able to use all of it but your IBM can't either.

JDQ

***** RAFFLE TICKETS!! *****

GET YOUR APPLE PI RAFFLE TICKETS!
ON SALE NOW
AT THE GENERAL MEETINGS & SWAP MEETS
NON-MEMBERS WELCOME

ONLY \$1 (helps pay for our meeting room)
PRIZES:

Z-80 CPM card for your Apple II
COMPLETE GRAPHICS SYSTEM by Penguin

you needn't be present

at the Feb drawing to win
JOIN THE FUN! SUPPORT APPLE PI!
BUY A TICKET!

Apple Confirms 3 New Computers for 1983

Cupertino, CA Oct. 1982

Apple Computer, Inc. rumored LISA, MACKINTOSH and SUPER II are not scheduled until 1983 according to President and Chief Executive A. C. Markkula. Apple is also adding to its line a dot-matrix printer supplied by Itek and a low-cost mass storage device.

Markkula confirmed that the replacement for the Apple II does exist but will not be released until the first quarter of 1983. It is generally expected that the SUPER II will be an upgrade of the present design. It is expected to come with 64K of RAM memory, 80-column display, upper/lower case, APPLE II compatability, and a higher speed version of the 6502 with a second 6502 to control the display. The SUPER II is expected to use custom ICs bringing the number of ICs from 136 down to 11.

A PARTIAL LIST OF APPLE PROMS

If you have a couple of APPLE PROMS kicking around in your junk box you may find the following list to be helpful.

341-0001	E0	Integer Basic
341-0002	E8	Integer Basic
341-0003	F0	Integer Basic
341-0004	F8	Old Monitor
341-0005	P1-02	General Printer
341-0006	P2	Communications Card
341-0009	P5	13 Sector Disk
341-0010	P6	13 Sector Disk
341-0011	D0	Applesoft
341-0012	D8	Applesoft
341-0013	E0	Applesoft
341-0014	E8	Applesoft
341-0015	F0	Applesoft
341-0016	D0	Programmers Aid #1
341-0017	P7-04	Serial Card
341-0018	P8	Serial Card
341-0019	P9	Centronics Printer
341-0020	F8	Auto-Start Monitor
341-0027	P5A	16 Sector Disk
341-0028*	P6A	16 Sector Disk
341-0048	P8A-00	Serial Card Software
		Handshake
341-0065A		Super Serial Card

* There are two versions of the P6A PROM for the 16 Sector Disk Interface Card. The early one carried the number 341-0028-00, while the later one carried the number 341-0028-01. If yours is not the -01 version, you should see your dealer and get one- this could be the reason you have been having some disk drive problems.

JDQ & LDB

Apple Renews with TEAM

Cupertino, CA

Apple Computer Inc said it has renewed for 1983 its Central Buying agreement with TEAM CENTRAL INC. Mmm. TEAM has been distributing for Apple to its approximately 90 franchises for the past five years.

* Tutors List *

FR

There is an open listing of "Tutors Wanted" and "Tutors Available" posted at every general meeting and swap meet. There are about 20 names on the list now..

DE

THANK YOU!

The Denver Apple Pi Users Group wishes to gratefully acknowledge the support of the following businesses that have purchased a business membership:

COLORADO COMPUTER SYSTEM
3005 W. 74th. Ave.
Westminster, CO 80030
(303) 426-5880

COMPUTER VIDEO CONCEPTS
P. O. Box 35
Evergreen, CO 80439
(303) 674-2385

COMPUTERLAND OF NORTH DENVER
8749 Wadsworth Blvd.
Arvada, CO 80003
(303) 420-1877

COMPUTERLAND OF DENVER
2422 S. Colorado Blvd.
Denver, CO 80222

BUSINESS COMPUTER SYSTEMS
13045 W. Alameda Parkway
Lakewood, CO 80228
(303) 988-9140

When you visit any of these stores, let them know that you are an Apple Pi member, and tell them you appreciate their support.

***** RAFFLE TICKETS!! *****

GET YOUR APPLE PI RAFFLE TICKETS!
ON SALE NOW
AT THE GENERAL MEETINGS & SWAP MEETS
NON-MEMBERS WELCOME

ONLY \$1 (helps pay for our meeting room)
PRIZES:

Z-80 CPM card for your Apple II
COMPLETE GRAPHICS SYSTEM by Penguin

you needn't be present

at the Feb drawing to win
JOIN THE FUN! SUPPORT APPLE PI!
BUY A TICKET!

APPLE PI USER'S GROUP LIBRARY INFORMATION

The APPLE PI LIBRARY contains over 5,000 programs and files on over 250 diskettes in over 30 categories. All of these programs are Public Domain programs which are either original efforts by members, modifications of programs listed in magazines or Newsletters for the APPLE II Computer, or programs obtained through trades with other clubs. Some of the programs that we have were copyrighted after they were given to us and so we are free to trade them with APPLE PI members only (and not even with other APPLE Computers Clubs). Please honor these commitments. Therefore the APPLE PI LIBRARY is not supposed to contain copyrighted programs; if you spot a copyrighted version of a program, please let us know so that we can remove it. This is one reason you must be careful in giving us programs in exchange.

The APPLE PI LIBRARY is open to all members of APPLE PI. There are several ways you can contribute to or obtain copies from the Library:

- 1). By coming to the Monthly SWAP MEET (usually on the First Sunday after the General Meeting).
- 2). By Written Request to the Librarian at the monthly General Meeting.
- 3). By Written Request to the Librarian by Mail.
- 4). By Appointment with Dr. Brown at the School of Mines (279-0300, Ext. 2434).

The Library is available at the SWAP MEETS. Every Member should have a listing of most of the programs in the yellow book "THE APPLE PI LIBRARY LISTING" (New Members receive them free when they join). Additional or Replacement Listings are no longer available. New LIBRARY LISTINGS will appear sometime next year. An Almost Up-to-Date Listing is available at the Swap Meets.

The cost to you for the copy of a side of programs is \$1.00 and a blank disk. Almost all programs in our Library are in the process of being converted from DOS 3.2 to DOS 3.3. Disks no longer need to be initialized for our copy program. We will no longer grant access to anyone to remove Diskettes from our Library to test them out to see if the programs on the Disk are wanted. The \$1.00 fee was made low enough for anyone to get these programs to try them out. We will also avoid people destroying Disks. Since we have been copying over 150 Diskettes during an average SWAP MEET we ask that you:

- 1). LABEL EACH SIDE WITH THE CATEGORY AND DISKETTE NUMBER (i.e. BU 001 Business). All good Diskettes come with Labels!
- 2). Copy Fee of \$1.00 per Disk side.
- 3). Punched Diskettes if you wish to copy both sides of Diskette.
- 4). BY MAIL we need: Your Name, Address, and phone number.
- 5). Instructions on how the Disk is to be returned. If by mail, be sure to include a self-addressed stamped envelope and Floppy Armor or \$2.00 to cover shipping costs.

The APPLE PI LIBRARY is only open to members of APPLE PI. These are programs that are obtained by your expense and effort. Please urge your friends to join also to add to this support. At the low cost of \$1.00 per Disk side, none of these programs are beyond the reach of people. Besides the low \$1.00 cost of a Disk full of Programs is one of the lowest of Apple Clubs in the Nation. We would not like to raise this fee. Many clubs do not even allow access of their programs to Members of their clubs except in the form of Disks of the Month. And most Clubs charge \$7.00 for them!

If you have found a)) BUG ((in one of our Programs please note the circumstances, Line Number and Type of Error. If you fix a)) BUG ((in a program we will give you another Disk Side FREE when you give us a "FIXED" copy of the program.

Hope to see you at the next Swap Meet.

Robert C. Gaiser, Librarian

AVANCED BASIC GROUP: DECEMBER SIG REPORT
by David Eisler

We talked about a wide range of topics at the last swap meet. Tom Angelos brought in some interesting Applesoft speed up hints. We looked at the limited noise making abilities of Applesoft. The Trace and Pop commands were reviewed.

The major portion of the meeting was spent discussing the following 3 subroutine utilities. The first one puts numbers in dollars & cents format. It creates a 9 character string, A\$, with the decimal point always in the 3rd place, trailing zeros added and leading zeros suppressed.

The next routine makes numbers more readable by inserting commas in the appropriate places.

The last routine is a general purpose input routine. It enhances the INPUT statement to include automatic re-prompting if the entered data is invalid or out of range. It also assigns default values when [return] is pressed without a preceeding number- a very handy feature. The routine provides a convenient way to input and screen data throughout a program.

```
10 REM DATA SCREENER
20 REM
30 REM 4 INPUTS:
40 REM P$= PROMPT
50 REM D= DEFAULT VALUE
60 REM MN= MIN LIMIT
70 REM MX= MAX LIMIT
80 REM
90 REM 1 OUTPUT:
100 REM A= NEW VALUE
110 REM
120 REM FOR EXAMPLE,
130 REM INPUT HORIZ POSN
140 REM *****
*
210 P$ = "HORIZ"
220 D = 20
230 MN = 1:MX = 39
240 GOSUB 30000
245 H = A
246 REM *****
```

```
250 P$ = "VERT"
260 D = 10
270 MN = 1:MX = 23
280 GOSUB 30000
290 VTAB A: HTAB H: PRINT H;" ";
A
300 END
310 REM *****

30000 PRINT P$;"? ";MN;"-";MX;" ";
DEFAULT:" ";D;" ";: INPUT " ";
A$:A = VAL (A$): IF A$ = " "
THEN A = D
30010 IF A > = MN AND A < = MX
THEN RETURN
30020 PRINT CHR$ (7): GOTO 30000
*****

20 REM COMMA INSERTER
25 REM INPUT A, ANY NUMBER
27 REM OUTPUT A$, A W/ COMMAS
28 REM INSERTED
29 REM FRACTIONAL PORTION
30 REM TRUNCATED
31 REM
40 INPUT "GIVE ME A NUMBER?";A
50 GOSUB 1000: PRINT A$: GOTO 40

999 REM
1000 A$ = STR$ ( ABS ( INT (A)))
: IF ABS (A) > = 1E9 THEN
1050
1010 IF ABS (A) < 1000 THEN 105
0
1020 A$ = LEFT$ (A$, LEN (A$) -
3) + "," + RIGHT$ (A$,3): IF
ABS (A) < 1000000 THEN 1050

1030 A$ = LEFT$ (A$, LEN (A$) -
7) + "," + RIGHT$ (A$,7)
1040 IF A < 0 THEN A$ = "-" + A$

1050 RETURN
```

(Continued)

* LOCAL COMPUTER SHOW *

The "Rockey Mountain Regional Computer Show" will be held in the Denver Merchandise Mart Feb 3-6. They say there will be "200+ displays ... 4000 different kinds of peripherals & accessories ... you'll save hundreds, even thousands of dollars". Video games, personal, and home computers included. See your paper for details.

DE


```

10 REM DOLLARS & CENTS
20 REM FORMATER
30 REM
40 REM INPUT:A, ANY NUMBER
50 REM -99,999.99 TO 99,999.99
60 REM OUTPUT:A$, 9 CHAR STRING

```

```

70 REM
90 Z = 100.00001
100 INPUT "GIVE ME A NUMBER?";A
110 GOSUB 30000: PRINT A$: GOTO
    100
120 REM
30000 B$ = " ": IF A < 0 THEN B$ =
    "-"
30010 A$ = RIGHT$ (" " + B$ +
    STR$ ( INT ( ABS (A))),6) +
    "." + RIGHT$ ("0" + STR$ (
    INT ( ABS (A) * Z)),2): RETURN

```

Go ahead and try them in your programs. If anyone has any improvements, questions, or other comments, please bring them to the next SIG meeting. I look forward to seeing you there!

DE

* APPLE PI IN THE NEWS !! *

There will be an article about Apple Pi in the Neighbors Section of the Dec. 15th Denver Post!

DE

SEED ADVERTISING RATES

\$20	1/4 Page
\$35	1/2 Page
\$60	Full Page

SEED UNCLASSIFIED ADS

Editor: Frank Reeves

TYPESETTING FROM YOUR OWN COMPUTER

Professional photo typesetting from your word processor text files. Can receive ASCII files via MODEM. For further information call Frank 499-2192

FOR SALE: Texas Instruments Silent 700

Printer with paper. (RS-232).....\$550

MACHINE LANGUAGE PROGRAMMER WANTED.....

Call Frank 499-2192

FOR SALE OR TRADE

I have a LOBO Disk II Interface Card, with both DOS 3.2 and 3.3 on the board. Will sell for \$75.00 or accept a DOS 3.2 APPLE Disk II Interface Card in partial trade.

Call Frank at 499-2192

ARTICLE FORMAT

For the moment, we would appreciate your submitting your articles in machine readable form. This implies that you give us a disk with one of the following on it:

- 3.3 DOS TEXT FILE (Apple Writer [])
- 3.3 DOS BINARY FILE (Apple Writer I)
- APPLE PASCAL EDITOR FILE
- 3.3 DOS MAGIC WINDOW BINARY FILE

Your disk will be returned to you promptly. Be sure that you give us a label telling what you are giving us.

We are printing much of this issue with a Diablo using a Prestige Elite 12 pitch daisywheel, a column width of 3.5 inches (42 characters), and 56 lines per column. It is our intent to print program listings in 80 character widths. Diagrams and sketches will be dealt with on an individual basis - they do not necessarily have to be furnished camera ready, but we do need to be able to understand them!

COLORADO COMPUTER PERIPHERALS

***Announces Quality Inexpensive Apple Compatible
Peripherals With A Full ONE YEAR WARRANTY !***

	Each	Bare Board
Apple Compatible Drive	\$265	
Disk Controller Card (DOS 3.3-3.2)	60	\$20
Videx 80 Column Card, Replacement	155	30
Z80 Softcard, Replacement	110	30
Language Card, Replacement (Includes F8 ROM)	95	30
New SA400L Drives (5 1/4 inch) (90-Day Warranty)	165	

COLORADO COMPUTER PERIPHERALS

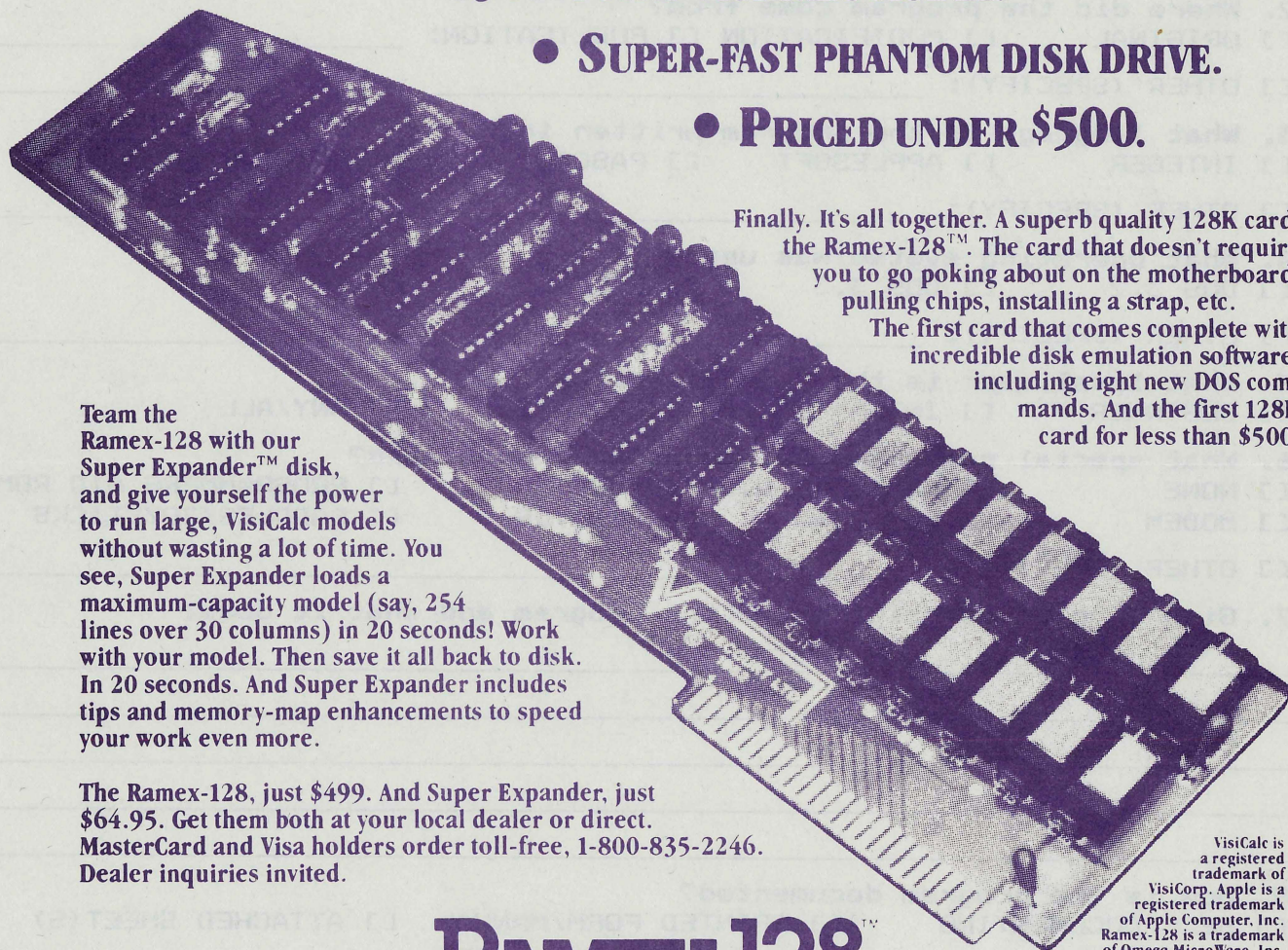
RR 6 Box 7-D

Golden, Colorado 80401

(303) 278-7172

NOW HERE FOR YOUR APPLE: A CARD THAT BLOWS ALL THE OTHERS AWAY!

- LOADS OR SAVES A FULL VISICALC® MODEL IN 20 SECONDS.
(NOT 16 MINUTES LIKE THE OTHERS)
- 136K FOR A VISICALC MODEL.
- SUPER-FAST PHANTOM DISK DRIVE.
- PRICED UNDER \$500.



Team the Ramex-128 with our Super Expander™ disk, and give yourself the power to run large, VisiCalc models without wasting a lot of time. You see, Super Expander loads a maximum-capacity model (say, 254 lines over 30 columns) in 20 seconds! Work with your model. Then save it all back to disk. In 20 seconds. And Super Expander includes tips and memory-map enhancements to speed your work even more.

The Ramex-128, just \$499. And Super Expander, just \$64.95. Get them both at your local dealer or direct. MasterCard and Visa holders order toll-free, 1-800-835-2246. Dealer inquiries invited.

Finally. It's all together. A superb quality 128K card, the Ramex-128™. The card that doesn't require you to go poking about on the motherboard, pulling chips, installing a strap, etc.

The first card that comes complete with incredible disk emulation software, including eight new DOS commands. And the first 128K card for less than \$500.

VisiCalc is a registered trademark of VisiCorp. Apple is a registered trademark of Apple Computer, Inc. Ramex-128 is a trademark of Omega MicroWare, Inc.

RAMEX-128™

UNDER \$500. WHAT ARE YOU WAITING FOR?



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APPLE II PROGRAM SUBMISSION FORM

* * * * *

PROGRAM TITLE: _____ DATE: _____

AUTHOR/SUBMITTER: _____

ADDRESS: _____ PHONE: _____

1. What type of program is it?

☐ UTILITY ☐ GAME ☐ EDUCATIONAL ☐ SCIENCE/MATH
☐ MUSIC ☐ BUSINESS ☐ ENGINEERING ☐ GRAPHICS (HI/LO)

☐ OTHER (SPECIFY): _____

2. Where did the program come from?

☐ ORIGINAL ☐ MODIFICATION ☐ PUBLICATION: _____

☐ OTHER (SPECIFY): _____

3. What language is the program written in?

☐ INTEGER ☐ APPLESOFT ☐ PASCAL ☐ MACHINE LANGUAGE

☐ OTHER (SPECIFY): _____

4. What operating system was used?

☐ DOS 3.2 ☐ DOS 3.3 ☐ PASCAL ☐ CP/M

☐ OTHER (SPECIFY): _____

5. What level user is the program written for?

☐ BEGINNER ☐ INTERMEDIATE ☐ ADVANCED ☐ ANY/ALL

6. What special requirements does the program need?

☐ NONE ☐ MULTIPLE DISK DRIVES ☐ PROGRAMMERS AID ROM
☐ MODEM ☐ RAM CARD ☐ PRINTER ☐ PADDLES/JOYSTICKS

☐ OTHER (SPECIFY): _____

7. Give a brief description of the program and what it does:

8. How is the program documented?

☐ SELF-DOCUMENTING ☐ PRINTED FORM/MANUAL ☐ ATTACHED SHEET(S)

9. Comments - include additional instructions, obscure features, etc.:
